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USE OF 1-HYDROXY-2-PYRIDONES
FOR THE TREATMENT OF
SEBORRHEIC DERMATITIS

DECLARATION OF JAMES LEYDEN, M. D.

I, James Leyden, M.D., do hereby declare that:

1. My B.A. in Biology is from St Joseph's College (1962) and I obtained my M.D. from the University of Pennsylvania in 1966. I did my residency at the University of Pennsylvania.
2. I am a practicing dermatologist and have been so since 1972. I have held the following positions: Assistant, Associate Professor and Professor of Dermatology at the University of Pennsylvania, School of Medicine. I am currently an Emeritus Professor of Dermatology at the University of Pennsylvania, School of Medicine.
3. Over the years, I have authored numerous articles and books on dermatology, including several on the subject of scaling disorders of the scalp including the etiology of these disorders. My professional achievements include positions on the editorial boards of the Journal of the American Academy of Dermatology, and Skin and Aging among others and Editor-in-Chief of Cutaneous Aging and Cosmetic Dermatology. A copy of my CV is attached hereto as Exhibit A.

4. In my practice, I have treated numerous patients suffering from seborrhea and others suffering from seborrheic dermatitis. All of the following has been known to dermatologists since at least 1997.
5. Seborrhea is a condition of the sebaceous glands characterized by the excessive production of sebum by the sebaceous glands which, when it reaches the skin surface, makes the skin appear oily or shiny and feel greasy. Seborrhea does not involve the skin's keratinocytes, and does not cause seborrheic dermatitis.
6. Seborrheic dermatitis is not a condition of the sebaceous glands. See Fitzpatrick's Dermatology in General Medicine, 6th ed., p. 1198 (attached hereto as Exhibit B). It is a chronic papulosquamous dermatosis (see Ex. B, p. 1198), and a disorder characterized by the hyperproliferation of keratinocytes in the skin. It is characterized by erythema (redness of the skin), scaling and yellow crusted patches. See Ex. B, p. 1198-1199. The origin of the name, seborrheic dermatitis, is that the disorder is most prevalent in areas where there are high densities of sebaceous glands (e.g. face and ears), not because sebaceous glands, sebum or seborrhea are related to the disorder. Essentially, in seborrheic dermatitis, the epidermal keratinocytes multiply too quickly, causing scaling and other symptoms. The sebaceous glands are not involved in seborrheic dermatitis and excess sebum production is not a diagnostic feature of seborrheic dermatitis.
7. Seborrhea is not a subset of seborrheic dermatitis, nor is seborrheic dermatitis a subset of seborrhea. Seborrhea and seborrheic dermatitis are different disorders and involve different cells: the sebaceous glands (seborrhea) and the keratinocytes (seborrheic dermatitis).

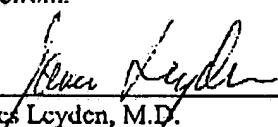
8. It is well-known among dermatologists that not every seborrhea patient has seborrheic dermatitis. Conversely, it is well-known among dermatologists that not every seborrheic dermatitis patient has seborrhea. From my dermatology practice and years as a teacher and researcher in this field, it is apparent that seborrheic dermatitis is very common in older patients, most of whom do not have seborrhea. This would be known to any dermatologist. Fitzpatrick concurs stating, "an increased sebum production cannot always be detected in [seborrheic dermatitis] patients," and "seborrheic dermatitis is not a disease of the sebaceous glands." *See* Ex. B, p. 1198. Other treatises reflect this view.
9. U.S. Patent No. 4,172,149 (filed in 1978, and attached hereto as Exhibit C), states that seborrhea (or excessive sebum) is "one component of the pathology [of seborrheic dermatitis]." This is wrong. It does not reflect the understanding of practitioners in this field.
10. U.S. Patent No. 6,120,756 states that seborrheic dermatitis "as used herein is defined as chronic inflammatory disease of the skin associated with excessive sebum production," (Col. 6, Lines 30-32, attached hereto as Exhibit D.) While this patent may so define this term for its own purposes, that doesn't reflect the understanding of the art, i.e., it is wrong. *See* Ex. B. Seborrheic dermatitis is a chronic inflammatory disease of the keratinocytes but it is not associated with excessive sebum production. *See* Ex. B, p. 1198-1199. Many, if not most, patients with seborrheic dermatitis do not have excessive sebum production. In fact, there is no evidence that seborrheic dermatitis is associated with either increased or decreased sebum production.

11. Because seborrhea and seborrheic dermatitis are totally different disorders, a dermatologist would not normally use an anti-seborrheic agent (that is, an agent used to treat seborrhea) to treat seborrheic dermatitis. This is especially true because dermatologists often see seborrheic dermatitis in patients who don't have seborrhea, and therefore know that seborrhea is not a subset nor the same as seborrheic dermatitis and seborrheic dermatitis is not a subset of seborrhea. Put another way, a physician will not use a treatment for seborrhea in connection with a disorder, such as seborrheic dermatitis, which is known to be different in both cause and effect from seborrhea.

All statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application and any registration resulting therefrom.

Date:

1/4/06


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CURRICULUM VITAE

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Date of Birth: August 20, 1940
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Marital Status Married - December 27, 1962
Wife: Claudette Schilling
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Education:

1958-1962 A.B. Saint Joseph's College
1962-1966 M.D. University of Pennsylvania School of Medicine

Postgraduate Training and Fellowship Appointments:

1966-1967 Intern Temple University Medical School
1967-1968 Resident in Dermatology, University of Pennsylvania
1967-1968 United States Public Health Fellow
1970-1972 Resident in Dermatology, University of Pennsylvania

Military Service:

1968-1970 Chief of Dermatology, U.S. Army, Fort Devens

Editorial Positions:

1985-1990 Editorial Board, Journal of the American Academy of Dermatology
1987-1992 Editorial Board, Journal of Microbial Ecology in Health and Disease
1988-1992 Editorial Board, Medicine Group
1988-1992 Editor-in-Chief, Cutaneous Aging and Cosmetic Dermatology
1993- Editorial Advisory Board, Skin & Aging

Committees:

1993-1997 American Academy of Dermatology, Board of Directors
1989-2001 Dermatology Foundation, Chairman, Board of Trustees
1987- Executive Committee, Dermatology Foundation
1988-1989 Vice President, Dermatology Foundation
 American Academy of Dermatology Infectious Disease Committee Chairman
 American Academy of Dermatology Health Industry Liaison Committee, Chairman
 American Academy of Dermatology Task Force On Steroid Anti-infection Agents,
 Vice Chairman
 American Academy of Dermatology Government Liaison Committee
 American Academy of Dermatology Therapeutics Committee
 Toxicology Committee, National Academy of Sciences
 Consultant to U.S.A. FDA and FTC
 Consultant to Health Protection Branch
 Canada Consultant to Drug Regulation Agencies of England, Germany, and Austria
1988-2002 Admissions Committee, School of Medicine, Medical Audit Committee, Hospital of the
 University of Pennsylvania Utilization Review Committee, Hospital of the University of
 Pennsylvania
2003- Sub-committee on Acne Management, American Academy of Pediatrics

Faculty Appointments:

1972-77 Assistant Professor of Dermatology, University of Pennsylvania School of Medicine
1972-87 Chief of Dermatology Clinic, Hospital of the University of Pennsylvania
1977-83 Associate Professor of Dermatology, University of Pennsylvania School of Medicine
1979- Affiliated Senior Scientist, Monell Chemical Senses Center
1983- Professor of Dermatology, University of Pennsylvania School of Medicine
2002 Professor Emeritus, University of Pennsylvania School of Medicine
2002 Adjunct Professor of Dermatology, Northwestern University School of Medicine

Specialty Certification:

1973 American Board of Dermatology

Licensure: Pennsylvania

Awards, Honors, and Membership in Honorary Societies:

1962 Who's Who of American Colleges
1966 Alpha Omega Alpha (Honorary Medical Society)
1971 Henry W. Stelwagon Award American Academy of Dermatology
1972 North American Dermatological Association Award
1976 Bronze Award for Original Investigation American Academy of Dermatology
1985 Gold Award for Original Investigation American Academy of Dermatology
1986 Bronze Award for Original Investigation American Academy of Dermatology
1986 Silver Award, Teaching Value American Academy of Dermatology
1997 Gold Award for Original Investigation American Academy of Dermatology
2003 Honorary Member, Society of Investigative Dermatology

Memberships in Professional and Scientific Societies:

Society of Investigative Dermatology
American Academy of Dermatology
Infectious Control and Hospital Epidemiology
Philadelphia Dermatologic Society
Philadelphia College of Physicians
American Society of Microbiology
Society of Pediatric Dermatology

Chapters, Reviews & Books

1. Rudolph, R.I., and Leyden, J.J.: Immunotherapy in Dermatology Rosenthale, Marvin e., and Herbert C. Mansmann, Jr., (Eds.), Monographs of the Physiological Society of Philadelphia, Vol., 1. Immunopharmacology pp. 315-332, Spectrum Publications, New York, NY, 1975.
2. Laskas, J.J., Jr., and Leyden, J.J.: Punctate keratoderma. Arch Derm, 111(7):921, July, 1975.
3. Kligman, A.M., McGinley, K.J., and Leyden, J.J.: Kopfschuppen. Ihre Ursachen und Behandlung. In: Har und Haar Krankherten, Herausgegeben von C. Orfanos, Stuttgart und New York: Gustave Fischer Verlag, Seiten 663-680, 1978.
4. Leyden, J.J., McGinley, J.J., Mills, O.H., and Kligman, A.M.: Topical Antibiotics and Topical Antimicrobial Agents in Acne Therapy. In: Dermatology Symposium in Lund: Eds. J. Juhlin, H. Rossman, J.S. Strauss. Uppland Gialfiska A.B. Uppala, 1980.
5. Kligman, A.M., and Leyden, J.J.: The Interaction of Fungi and Bacteria in the Pathogenesis of Athlete's Foot, in: Skin Microbiology: Relevance to Clinical Infection, Howard I. Maibach and Raza Aly (Eds.), published by Springer-Verlag, New York, NY, pp. 203-219, 1981.
6. Kligman, A.M., Leyden, J.J., Gross, P., Allen, H., and Rudolph, R.I.: Symposium on Retinoids 245-253, 1981.
7. Leyden, J.J.: Topical antibiotics in the prophylaxis of experimental S. Aureus and S. Pygemes infections in humans in Skin Microbiology: Relevance to Clinical Infection: Howard I. Maibach and Raza Aly (Eds.); published by Springer-Verlag, New York, pages 269-274, 1981.
8. Leyden, J.J., and Kligman, A.M.: Antimicrobials, in Safety and Efficacy of Topical Drugs and Cosmetics, Albert Kligman and James Leyden (Eds.), published by Grune and Stratton, New York, NY, pp. 289-310, 1982.

9. Leyden, J.J., and Kligman, A.M.: Dandruff, in Safety and Efficacy of Topical Drugs and Cosmetics, Albert Kligman and James Leyden (Eds.), published by Grune and Stratton, New York, NY, pp. 182-288, 1982.
10. Leyden, J.J., and Kligman, A.M.: Wound Healing, in Safety and Efficacy of Topical Drugs and Cosmetics, Albert Kligman and James Leyden (Eds.), published by Grune and Stratton, New York, NY, pp. 275-280, 1982.
11. Leyden, J.J. and Kligman, A.M.: Axillary Odor and Deodorant Testing, in Safety and efficacy of Topical Drugs and Cosmetics, Albert Kligman and James Leyden (Eds.), published by Grune and Stratton, New York, NY, pp. 269-274, 1982.
12. Leyden, J.J.: Microbial Ecology in Interdigital "Athlete's Foot Infection," (in) Seminars in Dermatology, Arthur J. Rook and Howard I. Maibach (Eds.), published by Thieme Stratton, New York, NY, pp. 149-152, 1982.
13. Leyden, J.J.: Bacteriology of newborn skin, (in) Neonatal Skin, Howard I., Maibach, and E.K. Boisis (ed.), published by Dekker Publishing House, New York, NY, 1982.
14. Leyden, J.J., McGinley, K.J., and Kligman, A.M.: Studies on the effect of shampoos on scalp lipids and bacteria, (in) Principles of Cosmetics for the Dermatologist, Phillip Frost and Steven N. Horowitz (eds.), published by the C.V. Mosby Company, St. Louis, pp. 16-27, 1982.
15. Leyden, J.J., McGinley, K.J., and Kligman, A.M.: Dandruff: Pathogenesis and treatment (in) Principles of Cosmetics for the Dermatologist, Phillip Frost and Steven N. Horowitz (Eds.), published by the C.V. Mosby Company, St. Louis, pp. 167-175, 1982.
16. Ruggieri, M.R., McGinley, K.J., Leyden, J.J., and Touchstone, J.C.: Reproducibility and Precision of Quantitation of Skin Surface Lipids by Thin Layer Chromatography. In: Quantitative Thin Layer Chromatography, Wiley Press, pp. 249-259, 1982.
17. Leyden, J.J.: Follicular Microflora in Acne Vulgaris, W.B. Saunders Company, Philadelphia, PA. Dermatologic Clinics 1.3, pp. 345-351, 1983.
18. Leyden, J.J.: Pathophysiology of Cutaneous Bacterial Infections, Pathophysiology of Dermatologic Diseases. McGraw-Hill Book Company, New York, NY, 1984.
19. Leyden, J.J., McGinley, K.J., Webster, G.F.: Cutaneous Microbiology, Chapter 51. In: Biochemistry and Physiology of the Skin, (Ed.) L.H. Goldsmith Oxford University Press, Chap. 51, 1153-1165, 1983.
20. Dobson, R.L., Leyden, J.J., Noble, W.O., and Pries, J.D., Editors: Bactroban (Mupirocin), Excerpta Medica, 1985. (Not included in this binder).
21. Leyden, J.J.: Bacteriology of the human axilla: Relationship to axillary odor. Cosmetic Science and Technology, 1986.
22. Leyden, J.J., and Grove, G.L.: Skin Irritation, In: Transdermal Delivery Systems Cutaneous Toxicology. A.F. Kydomieus and B. Bermer (Eds.). CRC Press Inc., 1987.

23. Leyden, J.J.: *Bacteriology of the Human Axilla, Relationship to Axillary Odor. In: Antiperspirants and Deodorants. (Eds) Laden, K., Felquer, C.B. Marcel Dekker, Inc., August, 1988.*
24. Nordstrom, K.M., Tseng, S.C.G., and Leyden, J.J.: *Effect of 13-Cis and all-Trans Retinoic Acid on the neural Lipids of the Meibomian Gland of the Rabbit. Acne and Related Disorders. Ronald Marks and Gerd Plewig (Eds.), published Martin Dunitz, London, England, pp. 179-182, 1989.*
25. Vane, F.M., Chari, S.S., Shapiro, S.S., Nordstrom, K.M., and Leyden, J.J.: *Comparison of the Plasma and Sebum Concentrations of the Arotinoid Ro 15-0778 and Isotretinoin (Accutane) in Acne Patients. Acne and Related Disorders. Ronald Marks and Gerd Plewig (Eds), published by Martin Dunitz, London, England, pp. 183-189, 1989.*
26. Lavker, R.M., Leyden, J.J., and Kligman, A.M.: *The anti-inflammatory activity of isotretinoin is a major factor in the clearing of acne conglobata. Acne and Related Disorders. Ronald Marks and Gerd Plewig (eds), published by Martin Dunitz, London, England, pp.207-216, 1989.*
27. Leyden, J.J., Nordstrom, K.M., and McGinley, K.J.: *Cutaneous Microbiology Chapter 53. In: L.H. Goldsmith (ed.), Biochemistry and Physiology of the skin. Oxford University Press, Oxford, 1257-1266, 1991.*
28. Leyden, J.J., and McGinley, K.J. *Coryneform Bacteria. The Skin Microflora and Microbial Skin Disease. W.C. Noble, editor, published by Cambridge University Press, pp. 102-117, 1992.*
29. Leyden, JJ. and McGinley, K.J. *Coryneforms as Pathogens. The Skin Microflora and Microbial Skin Disease. W.C. Noble, editor, published by Cambridge University Press, pp. 118-134, 1992.*
30. Leyden, J.J.: *Review of mupirocin ointment in the treatment of impetigo. Clini Pediatr, 31:549-553, 1992.*
31. Leyden, J.J., and Aly R.: *Tinea Pedis. [Review] [Journal Article, Review. Review, Tutorial] Seminars in Dermatology. 12(4):280-4, Dec. 1993.*
32. Kligman, A.M., and Leyden, J.J.: *Treatment of photoaged skin with topical tretinoin. [Review]. [Journal Article. Review. Review, Tutorial] Skin Pharmacology. 6 Suppl 1:78-82, 1993.*
33. Mowad, C.M., Nguyen, T.V., Elenitsas, R., and Leyden, J.J.: *Bleomycin-induced flagellate dermatitis: a clinical and histopathological review. [Review] [Journal Article. Review. Review of Reported Cases] British Journal of Dermatology. 13(5):700-2, Nov. 1994. Complete Record.*
34. Leyden, J.J. *Review-Handbook of Cosmetic Microbiology. Donald Orth, M.D. J.A.A.D. 32(2):301, Feb. 1995.*

35. Preti G, Speilman A, Leyden JJ. Structure, origin and function of human axillary odors. Chapter: Fragrance: Beneficial and Adverse Effects Ed., Frosch PJ, Springer-Verlag 1998
36. Leyden,JJ.: Axillary Odor Determination, Formation.Antiperspirants and Deodorants, 2nd Ed., Marcel Dekker, Inc. pp59-82, December 1998. Chapter
37. Leyden,J.J., Marks,R.: Dermatologic Therapy in Current Practice. Martin Dunitz Ltd. 2001
38. Leyden,J.J.,Rawlins,A.:Dry Skin. Marcel Decker.2002

Original Publications

1. Fulton, J.E., McGinley, K.J.,Leyden, J.J. and Marples, R.R.: Gram negative folliculitis in acne vulgaris, Arch Derm 98:349-353, 1968.
2. Lantis, S., Leyden, J.J., Thew, M.D., and Heaton, C: Nevus sebaceous of Jadasshon, part of a new neurocutaneous syndrome? Arch Derm 98:117-123, 1968.
3. Fulton, J.E., Leyden, J.J., and Papa, C.M.: Treatment of vitiligo with topical methoxsalen and black light. Arch Derm 100:224-229, 1969.
4. Marples, R.R., Fulton, J.E., Leyden, J.J., and McGinley, K.J.: Effects of Antibiotics on the nasal flora in acne patients. Arch Derm 99:647-651, 1969.
5. Leyden, J.J., and Wood, M.: The half and half nail, an uremic onychopathy. Arch Derm 105(4):591-592, 1972.
6. Dechard, J., Mills, O.H., and Leyden, J.J.: Naevus comedonicus-treatment with retinoic acid. Br J Derm 86(5):529-529, 1972.
7. Leyden, J.J.: Chromonychia. Cutis 10:161-164, 1972.
8. Stein, K., Leyden, J.J., and Goldschmidt, H.: Localized acneiform eruption following cobalt irradiation. Br J Derm 87(3):274-279, 1972.
9. Leyden, J.J., Lockshin, N., and Kriebel, S.: The black keratinous cyst - a sign of hemochromatosis. Arch Derm 106(3):379-381, 1972.
10. Leyden, J.J., Spott, D.A., and Goldschmidt, H.: Diffuse and banded melanin pigmentation in nails. Arch Derm 105(4):548-550, 1972.
11. Leyden, J.J., Dechard, J. and Goldschmidt, H.: Exfoliative cytology in the diagnosis of psoriasis of nails. Cutis 10:701-704, 1972.
12. Leyden, J.J. and Kligman, A.M.: Hairs in acne comedones. Arch Derm 106(1):851-853, 1972.
13. Leyden, J.J. and Kligman, A.M.: Treatment of alopecia areata with steroid solution. Arch Derm 106(1):924, 1972.

14. Benett, R.G., Leyden, J.J., and Decherd, J.W.: The heroin ulcer. New Addition to the differential diagnosis of ulcers of the penis. Arch Derm 107(1):121-122, 1973.
15. Leyden, J.J., and Mills, O.H.: Cystic acne as a source of bleeding in hemophilia. Arch Derm 107:456-466, 1973.
16. Leyden, J.J., and Master, G.H.: Oral cavity pyogenic granuloma. Arch Derm 108(2):226-228, 1973.
17. Leyden, J.J. and Marples, R.R.: Ecological principles and antibiotic therapy in chronic dermatoses. Arch Derm 107(2):108-211, 1973.
18. Leyden, J.J., Marples, R.R.: Superinfection induced by antibiotics in familial benign chronic pemphigus. Acta Derm Venerol Suppl. 53(1):61-64, 1973.
19. Leyden, J.J., Marples, R.R., Mills, O.H., and Kligman, A.M.: Gram-negative folliculitis - complication of antibiotic therapy in acne vulgaris. Br J Derm 88(6):533-538, 1973.
20. Kligman, A.M., Mils, O.H., Leyden, J.J., and Fulton, J.E.: Postscript to vitamin A-acid therapy for acne vulgaris. Arch Derm 107(2):296, 1973.
21. Mills, O.H., Leyden, J.J., and Kligman, A.M.: Tretinoin treatment of steroid acne. Arch Derm 108(3):381-384, 1973.
22. Klein, A.W., Rudolph, R.I., and Leyden, J.J.: Telogen effluvium as a sign of Hodgkin's disease. Arch Derm 108(5):702-703, 1973.
23. Scott, R.W., Klein, A.W., and Leyden, J.J.: Acanthosis Nigricans associates with a benign encephalopathy. Arch Derm 109(1):78-80, 1974.
24. Leyden, J.J.: Antibiotic usage in dermatological practice. Review Article: 24 Ref. Int J Dermatol 1974 Nov-Dec, 13(6):342-352.
25. Leyden, J.J., Mills, O.H., Kligman, A.M.: Cryoprobe treatment to Acne conglobata. BrJ Dermatol Mar 90(3):335-41, 1974.
26. Kligman, A.M., Mills, O.H., Jr., and Leyden, J.J.: Acne vulgaris: a treatable disease. Post Grad Med Feb 55(2):99-105, 1974.
27. Berger, B.J., Rudolph, R.I., and Leyden, J.J.: Letter: Transient acantholytic dermatosis. Arch Derm June 109(6):913, 1974.
28. Decherd, J., Leyden, J.J., Holtapple, J.J.: Facial Pyoderma gangrenosum in preceding ulcerative colitis. Cutis 14:208-210, 1974.
29. Rudolph, R.I., Schwartz, W., and Leyden, J.J.: Bitemporal Aplasia Cutis Congenita occurrence with other cutaneous abnormalities. Arch Derm 110(4):615-618, 1974.
30. Marples, R.R., Leyden, J.J., Stewart, R., Mills, O.H., and Kligman, A.M.: The Skin microflora in acne vulgaris. J Invest Derm 62(1):37-41, 1974.

31. Kligman, A.M., and Leyden, J.J.: Adverse effects of Fluorinated steroids applied to the face. J.A.M.A. 229(1):60-62, 1974.
32. Leyden, J.J., Marples, R.R., and Kligman, A.M.: Staphylococcus aureus in the lesions of atopic dermatitis. Br J Dermatol 90(5):525-530, 1974.
33. Klein, A., Burns, L., Leyden, J.J.: Rectal mucosa involvement in keratosis follicularis. Arch Derm 109(4):560-561, 1974.
34. Leyden, J.J., Marples, R.R., Mills, O.H., Kligman, A.M.: Tretinoin and antibiotic therapy in acne vulgaris. South Med 67(1):20-25, 1974.
35. Leyden, J.J., Thew, M., and Kligman, A.M.: Steroid Rosacea. Arch Derm 110(4):619-22, 1974.
36. Rudolph, R.I., Berger, B.J. and Leyden, J.J.: Efficacy of Physiatric Management of Linear Scleroderma. Arch Phys Med and Rehab 55(9):428-431, 1974.
37. Rudolph, R.I., Schwartz, W., and Leyden, J.J.: Treatment of Staphylococcal Toxic Epidermal Necrolysis. Arch Derm 110(4):559-562, 1974.
38. Kligman, A.M., Mills, O.H., McGinley, K.J., and Leyden, J.J.: Acne therapy with Tretinoin in combination with antibiotics. Acta Dermato Venereo 74:111-115, 1974.
39. Leyden, J.J., Kligman, A.M.: Aluminum chloride in the treatment of symptomatic "Athlete's foot." Arch Derm 111(8):1004-1010, 1974.
40. Rudolph, R.I., Leyden, J.J.: Dermatologic therapy with immunosuppressive agents. Post Grad Med Aug. 58(2):103-8, 1974.
41. Leyden, J.J., McGinley, K.J., Mills, O., and Kligman, A.M.: Age related changes in the resident bacterial flora of the human face. Journal Invest Dermatol 65(4):379-381, 1974.
42. Leyden, J.J., McGinley, K.J., Mills, O.H., and Kligman, A.M.: Propionibacterium levels in patients with and without Acne Vulgaris. J invest Derm 65(4):382-384, 1975.
43. McGinley, K.J., Leyden, J.J., Marples, R.R., and Kligman, A.M.: Quantitative microbiology of the scalp in non-dandruff, dandruff, and seborrheic dermatitis. J Invest Derm 64(6):401-405, 1975.
44. Leyden, J.J., McGinley, K.J., Kligman, A.M.: Shorter methods for evaluating anti-dandruff agents. J Soc Cos Chem 26(12):573-580, 1975.
45. Leyden, J.J.: Systemic antibiotics for treatment of acne vulgaris: Efficacy and safety. Arch Derm 111:1630-1636, 1975.
46. Rudolph, R.I., and Leyden, J.J.: Physiatrics for deforming linear scleroderma. Arch Derm 112(7):995-97, 1976.

47. Kligman, A.M., Leyden, J.J., and McGinley, K.J.: Bacteriology: 45 Refs. J Invest Dermatol 67(1):160-8, July 1976.
48. Leyden, J.J.: Antibiotic resistance acne. Cutis Mar 17(3):593-6, 1976.
49. Leyden, J.J., Kligman, A.M.: Acne vulgaris: New concepts in pathogenesis and treatment. Review Article: 23 Refs. Drugs 12(4):292-300, 1976.
50. Leyden, J.J.: Pathogenesis of acne vulgaris. Review Article: 22 Refs. Int J Dermatol 15(7):490-496, September 1976.
51. Kligman, A.M., McGinley, K.J., and Leyden, J.J.: The nature of dandruff. J Soc Cos Chem 27:111-139, 1976.
52. Leyden, J.J., McGinley, K.J., and Kligman, A.M.: The role of microorganisms in dandruff. Arch Derm 112(3):333-338, 1976.
53. Lane, J.J., Leyden, J.J., and Spiegel, R.J.: Acne Arthralgia J Bone and Joint Surg 58A:673-675, 1976.
54. Leyden, J.J.: Getting to the root of the dandruff problem. Consultant 16:32-35, 1976.
55. Leyden, J.J. and Kligman, A.M.: Rational therapy of acne vulgaris. Derm Digest 16(6):14-23, 1977.
56. Leyden, J.J., and Kligman, A.M.: The case for steroid-antibiotic combinations. Br J Derm 96(2):179-187, 1977.
57. Leyden, J.J., and Kligman, A.M.: Contact sensitization to benzoyl peroxide. Contact Dermatitis. Oct 3(5):273-5, 1977.
58. Goldschmidt, H. Leyden, J.J., Stein, K.: Acne Fulminans: Investigation of acute febrile ulcerative acne. Arch Derm 113(4):444-449, 1977.
59. Leyden, J.J., Kligman, A.M.: Interdigital Athlete's Foot: New Concepts in pathogenesis. Post Grad Med 61(6):113-116, 1977.
60. Leyden, J.J., Kligman, A.M.: Studies on the allergenicity of 5-fluorouracil. J Derm Surg and Oncol 3(5): 518-519, 1977.
61. Leyden, J.J., Katz, S., Stewart, R., and Kligman, A.M.: Urinary ammonia and ammonia producing micro-organism in infants with and without diaper dermatitis. Arch Derm 113(12):1678-80, 1977.
62. Leyden, J.J., Kligman, A.M.: Allergic Contact dermatitis: Sex Differences. Contact Dermatitis 3(6):333-336, 1977.
63. Kligman, A.M., Leyden, J.J., and Stewart, R.: New uses for benzoyl peroxide: A broad spectrum antimicrobial agent. Int J Derm 16(5):413-417, 1977.

64. Gaisin, A., Holzwanger, J.M., Leyden, J.J.: *Endothrix tinea capitis in Philadelphia*. Int J Derm 16(3):188-190, 1977.
65. Leyden, J.J., and Kligman, A.M.: *Rationale for topical antibiotics*. Cutis 22(4):515-20.522-8, October, 1978.
66. Webster, G.F., Leyden, J.J., Norman, M.E., and Nilsson, U.R.: *Complement activation in acne vulgaris: In vitro studies with propionibacterium acnes and propionibacterium granulosum*. Infection and Immunity. 22(2):523-29, 1978.
67. Doty, R.L., Kligman, A.M., Leyden, J.J., and Orndorff, M.M.: *Communication of gender from human axillary odors: Relationship to perceived intensity and hedonicity*. Behavioral Biology. 23:373-380, 1978.
68. McGinley, K.J., Webster, G., and Leyden, J.J.: *Regional variations of cutaneous propionibacteria*. J App Env Micro 35(1):62-66, 1978.
69. Leyden, J.J., McGinley, J.J., Grove, G., and Kligman, A.M.: *Age-related differences in the rate of desquamation of skin surface cells*, Plenum Publishing Corporation, 226 West 17th Street, New York, NY 10011. Pharmacological Intervention of the Aging Process, Adv Exp Med Biol 97:297-298, 1978.
70. Leyden, J.J., and Kligman, A.M.: *Interdigital "Athlete's Foot," The interaction of dermatophytes and resident bacteria*. Arch Derm 114(10):466-1472, 1978.
71. Leyden, J.J., and Kligman, A.M.: *The role of micro-organisms in diaper dermatitis*. Arch Derm 114(1):56-59, 1978.
72. Bernstein, B.D., and Leyden, J.J.: *Zinc deficiency and acrodermatitis after intravenous hyperalimentation*. Arch Derm 114(7):1070-1072, 1979.
73. Labows, J., McGinley K.J., Leyden, J.J., and Webster, B.: *Characteristic gamma-lactone odor production of the genus Pityrosporum*. Applied and Environmental Microbiology 38(3):412-415, 1979.
74. Labows, J. Preti, G., Hoelzle, E., Leyden, JJ., and Kligman, A.M.: *Analysis of human axillary volatiles: Compounds of exogenous origin*. J Chromatograph 163:294-299, 1979.
75. Labows, J., Preti, G., Hoelzle, E., Leyden, JJ., and Kligman, A.: *Steroid analysis of human apocrine secretion*. Steroids 34(3):249-258, 1979.
76. Leyden, J.J., Stewart, R., and Kligman, A.M.: *Updated In-vivo methods for evaluating topical antimicrobial agents on human skin*. J Invest Derm 72(4):165-170, 1979.
77. Webster, G.F., Leyden, J.J., and Nilsson, R.R.: *Complement activation in acne vulgaris consumption of complement by comedone*. Infect Immun 26(1):183-186, 1979.
78. Lavker, R.M., and Leyden, J.J.: *Lamellar inclusions in follicular horny cells: A new aspect of abnormal keratinization*. J Ultrastructure Research 69(3):362-370, 1979.

79. Leyden, J.J., and Baker, D.A.: Localized herpes simplex infections in atopic dermatitis. Arch Derm 115(3):311-312, 1979.
80. Honig, P.J., Holzwanger, J.M., and Leyden, J.J.: Congenital herpes simplex virus infections: Report of three cases and review of the literature. Arch Derm 115(11): 1329-1333, 1979.
81. Leyden, J.J., and Kligman, A.M.: contact dermatitis to neomycin sulfate. J.A.M.A. 242(12):1276-1278, 1979.
82. Leyden, J.J., McGinley, K.J., and Mills, O.H.: *Pseudomonas aeruginosa* gram negative folliculitis. Arch Derm 115(10):1203-1204, 1979.
83. Kligman, A.M., and Leyden, J.J.: "Reactions" to standard patch test materials. Acta Dermatol Venereol 59, Supplement 39:101-103, 1979.
84. Shalita, A., Freinkel, R.K., Downing, D., Kligman, A.M., Leyden, J.J., Montagna, W., Pochi P., Phuvel, S.M., Reisner, R.M., et. al.: Acne. J Invest Derm 73(5)(Part 2):434-442, 1979.
85. Leyden, J.J., and Kligman, A.M.: Dandruff: Cause and treatment. cosmetics and Toiletries 94:24-28, 1979.
86. Leyden, J.J., Stewart, R., and Kligman, A.M.: Experimental inoculation of *Pseudomonas Aeruginosa* and *Pseudomonas Cepaciae* on human skin. J Soc Cos Chem 3(1):19-28, 1980.
87. McGinley, K.J., Webster, G., and Leyden, J.J.: Facial follicular porphyrin fluorescence: Correlation with age and density of *Propionibacterium acnes*. Br J Derm 102(4):437-442, 1980.
88. Webster, G. and Leyden, J.J.: Characterization of serum-independent polymorphonuclear leukocyte chemotactic factors produced by *propionibacterium acnes*. Inflammation 4(3):261-270, 1980.
89. Webster, G., Leyden, J.J., Tsai, C.C., Baehni, P., and McArthur, W.P.: Polymorphonuclear leukocyte lysosomal release in response to *propionibacterium acnes* in-vitro and its enhancement by sera from inflammatory acne patients. J Invest Derm 74(6):398-401, 1980.
90. Leyden, J.J., Stewart R., and Kligman, A.M.: Experimental infections with Group A. *Streptococci* in humans. J Invest Dermatol 75(2):196-201, 1980.
91. Labows, J.N., McGinley, K.J., Webster, G.F., and Leyden, J.J.: Headspace analysis of volatile metabolites of *Pseudomonas aeruginosa* and related species by gas chromatography-mass spectrometry. J Clin Microbiology. 12(5); 672-675, 1980.
92. McGinley, K.J., Webster, G.F., Ruggieri, M.R., and Leyden, J.J.: Regional variations in density of cutaneous *propionibacteria*: Correlation of *propionibacterium acnes* populations with sebaceous secretion. J Clin Microbiology 12(5):672-675, 1980.
93. Leyden, J.J., McGinley, K.J., Mills, O.H., and Kligman, A.M.: Topical antibiotic and topical antimicrobial agents in acne therapy. Acta Derm Venerol (suppl 1)(Stockh) 1980; Suppl. 89:75-82, 1980.

94. Webster, G., McGinley, K.J., and Leyden, J.J.: Inhibition of lipase production in *propionibacterium acnes* by subminimal inhibitory concentrations of tetracycline and erythromycin. Br J Derm 104(4):453-157, 1981.
95. Lavker, R.M., Leyden, J.J., and McGinley, K.J.: The relationship between bacteria and the abnormal follicular keratinization in acne vulgaris. J Invest Derm 77(3):325-330, September, 1981.
96. Leyden, J.J., McGinley, K.J., Hoelzle, E., Labows, J.N., and Kligman, A.M.: The microbiology of the human axilla and its relationship to axillary odor. J Invest Derm 77(5):413-416, 1981.
97. Leyden, J.J., and Sulzberger, M.: Topical antibiotics and minor skin traumas. Am Fam Physician 23(1):121-125, 1981.
98. Kligman, A.M., Mills, O.H., Leyden, J.J., Gross, P.R., Allen, H.B., and Rudolph, R.I.: Oral Vitamin A in acne vulgaris. Preliminary Report. Inter J Derm 20(4):278-285, 1981.
99. Lazorik, F.C., Friedman, A.K., and Leyden, J.J.: Xeroradiographic observations in four patients with chronic renal disease and cutaneous gangrene. Arch Derm 117(6):325-328, June, 1981.
100. Rebora, A., and Leyden, J.J.: Napkin (diaper) dermatitis and gastrointestinal carriage of *Candida albicans*. Br J Derm 105(5):551-555, 1981.
101. Webster, G.F., Leyden, J.J., McGinley K.J., and McArthur, W.P.: Suppression of polymorphonuclear leukocyte chemotactic factor production in *propionibacterium acnes* by subminimal inhibitory concentrations of tetracycline, ampicillin, minocycline, and erythromycin Antimicrob Agents Chemother 21(5):770-772, May, 1982.
102. Leyden, J.J., McGinley, K.J., and Kligman, A.M.: Tetracycline and minocycline treatment. Effects on skin-surface lipid levels and *Propionibacterium acnes*. Arch Derm 118(1):19-22, 1982.
103. McGinley, K.J., and Leyden, J.J.: Antifungal activity of dermatological shampoo. Arch Derm Res 272(3-4):339-342, 1982.
104. Leyden, J.J., and McGinley, K.J.: Effects of 13-Cis Retinoic Acid on sebum production and *P. acnes* in severe nodulocystic acne. Arch Derm Res 272(3-4):331-337, 1982.
105. Allen, H., Honig, P.J., Leyden, J.J., and McGinley, K.J.: Selenium sulfide: Adjunctive therapy for tinea capitis. Peds 69(1):81-83, 1982.
106. Honig, P.J., Spitzer, A., Bernstein, R., and Leyden, J.J.: Congenital ingrown toenails: Clinical significance. Clin Pediatr (Philadelphia) 21(7):424-6, July, 1982.
107. Leyden, J.J., McGinley, K.H., Cavalieri, S., Webster, G.J., Mills, O.H., and Kligman, A.M.: *Propionibacterium acnes*-resistance to antibiotics in acne patients. J.A.A.D 8(2):41-45, 1983.

108. James, W.D., and Leyden, J.J.: Gram-negative folliculitis-recognition and treatment. J.A.A.D. 9(1):165-166, 1983.
109. Shalita, A.R., Cunningham, W.J., Leyden, J.J., Pochi, P.E., and Strauss, J.S.: Isotretinoin treatment of acne and related disorders: An update. J.A.A.D 9(4):629-638, October 1983.
110. Webster, G.F., Alexander, J.C., McArthur, W.P., and Leyden, J.J.: Inhibition of chemiluminescence in human neutrophils by Dapsone. Br J Derm 110:657-663, 1983.
111. Leyden, J.J.: Topical antiseptics (letter) Arch Derm 120(11):419, 1984.
112. Leyden, J.J.: Cornstarch, *Candida albicans* and diaper rash. J Ped Derm 1(4):322-5, 1984.
113. Scholl, G.M., Wu, C.H., and Leyden, J.J.: Androgen excess in women with acne. Obstet-Gynecol 64:683-688, 1984.
114. Webster, G.F., Leyden, J.J., Musson, R.A., and Douglas, S.D.: Susceptibility of propionibacterium acnes to killing and degradation by human neutrophils and monocytes in vitro. Infect Immuno 49(1):116-21, July 1985.
115. Webster, G.F., Indrisano, J., and Leyden, J.J.: Antibody titers to propionibacterium acnes cell wall carbohydrate in nodulocystic acne patients. J Invest Derm 84:496-500, 1985.
116. Falanga, V., Campbell, D.E., Leyden, J.J., and Douglas, S.D.: Nasal carriage of *Staphylococcus aureus* and Antistaphylococcal immunoglobulin E antibodies in atopic dermatitis. J Clin Microbiology 22(3):452-454, 1985.
117. McGinley, K.J., Labows, J.N. Zeckman, J.M., Nordstrom, K.M., Webster, G.F., and Leyden, J.J.: Pathogenic JK Group *Corynebacteria* and Their Similarity to Human Cutaneous Lipophilic Diphtheroid. J Infect Disease 152:801-805, 1985.
118. McGinley, K.J., Labows, J.N., Zeckman, J.M., Nordstrom, K.M., Webster, G.F., and Leyden, J.J.: Analysis of cellular components biochemical reactions and habitat of human cutaneous lipophilic diphtheroid. J Invest Derm 85:374-77, 1985.
119. Leyden, J.J.: Absorption of minocycline hydrochloride and tetracycline hydrochloride. Effect of food, milk, and iron in absorption. J.A.A.D. 12:308-312, February 1985.
120. Leyden, J.J., Smith, J.G., Chalker, D.K., Rea, T.H., Tomecki, K.H., and Levitan, J.: Serological survey for markers of Hepatitis B infection in dermatologists. J.A.A.D. 12:676-680, 1985.
121. James, W.D., and Leyden, J.J.: Treatment of gram-negative folliculitis with isotretinoin: Positive clinical and microbiologic response. J.A.A.D 12:319-324, 1985.
122. Leyden, J.J.: Low serum iron levels and moderate anemia in severe nodulocystic acne: Reversal with Isotretinoin therapy. Arch Derm 12(2):214-5, February 1985.
123. Leyden, J.J.: Infection in the immunocompromised host. Arch Derm 122:855-857, 1985.

124. Leyden, J.J.: Studies on the safety of Bactroban ointment: potential for contact allergy, contact irritation, photo-toxicity and photo-allergy. In: Bactroban, (Eds.) R.L. Dobson, J.J. Leyden, W.C. Noble, and J.D. Price, Excerpta Medica pp. 68-71, 1985.
125. Leyden, J.J., and Aly, R.: Prophylactic efficacy of Bactroban and other topical antibiotics. Part II antimicrobial action of Bactroban ointment applied to traumatized human skin. In: Bactroban, (Eds.) R.L. Dobson, W.C. Noble, and J.D. Price, Excerpta Medica pp.78-83, 1985.
126. Leyden, J.J.: Effect of Bactroban ointment, Neosporin ointment, and Garamycin ointment in the prophylaxis of infection of cutaneous wounds in human volunteers. In: Bactroban, (Eds.), R.L. Dobson, J.J. Leyden, W.C. Noble, and J.D. Price, Excerpta Medica, pp. 84-88, 1985.
127. Leyden, J.J.: Double-blind study on the clinical and quantitative bacteriological effects of Bactroban ointment in secondarily infected dermatoses. In: Bactroban (Eds.) R.L. Dobson, J.J. Leyden, W.C. Noble, and J.D. Price, Excerpta Medica, pp. 253-256, 1985.
128. Nordstrom, K.M., Labows, J.N., McGinley, K.J., and Leyden, J.J.: Characterization of wax esters, triglycerides, and free fatty acids of follicular casts. J Invest Derm 86:700-705, 1985.
129. Leyden, J.J.: Diaper Dermatitis. Dermatol Clin 4(1):23-28, January 1986.
130. Nordstrom, K.M., Schmus, H.G., McGinley, K.J., and Leyden, J.J.: Measurement of sebum output using a lipid absorbent tape. J Invest Derm 87:260-263, 1986.
131. Leyden, J.J., McGinley, K.J., and Foglia, A.M.: Qualitative and quantitative changes in cutaneous bacteria associated with systemic isotretinoin therapy for acne conglobata. J Invest Derm 86:390-393, 1986.
132. Larson, E.L., Leyden, J.J., McGinley, K.J., Grove, G.L., and Talbot, G.H.: Physiologic and microbiologic changes in skin related to frequent handwashing. Infect Control 7:59-63, 1986.
133. Larson, E.L., McGinley, K.J., Grove, G.L., Leyden, J.J., and Talbot, G.H.: Physiologic microbiologic and seasonal effects of handwashing on the skin of health care personnel. Amer J Infect Control 14:51-59, 1986.
134. Larson, E.L., McGinley, K.J., Foglia, A.M., Talbot, G.H., and Leyden, J.J.: Comparison and antimicrobial resistance of skin flora in hospitalized and healthy adults. J Clinical Microbiol 23:604-608, 1986.
135. Larson, E.L., McGinley, K.J., Leyden, J.J., Cooley, M.E., and Talbot, G.H.: Skin colonization with antibiotic resistant (JK Group) and antibiotic sensitive lipophilic diphtheroid in hospitalized and normal adults. J Infect Dis. 153:701-706, 1986.
136. Leyden, J.J., and Shalita, A.R.: Rational Therapy for Acne vulgaris. An update on topical treatment. J.A.A.D. 15:907-916, 1986.
137. Kligman, A.M., Grove, G.L., Hirose, R., and Leyden, J.J.: Topical Tretinoin for Photoaged Skin. J.A.A.D 15(4):836-859, 1986.

138. Katz, B.H., McGinley, K.J., and Leyden, J.J.: Semi-permeable occlusive dressing: effects on growth of pathogenic bacteria and re-epithelialization of superficial wounds. Arch Derm 122:58-62, 1986.
139. Soschin, D.M., and Leyden, J.J.: Sorbic acid-induced erythema and edema. J.A.A.D. 14-234-241, 1986.
140. Shalita, A.R., Leyden, J.J., Pochi, P.E., and Strauss, J.S.: Acne vulgaris J.A.A.D 16(2):410-412, 1987.
141. Leyden, J.J.: Benzocaine and bacitracin as sensitizers (letter) J.A.A.D 16(5 Pt):1055-1057, Mary, 1987.
142. Stoughton, R.B., and Leyden, J.J.: Efficacy of 4 percent chlorhexidine gluconate skin cleanser in the treatment of acne vulgaris. Cutis 39(6):551-553, June 1987.
143. Parenti, M.D., Hatfield, S.M., and Leyden, J.J.: Mupirocin: A topical antibiotics with a unique structure and mechanism of action. Clin Pharm 6(10):761-70, October 1987.
144. Leyden, J.J., Shalita, A.R., Saatjian, G.D. and Sefton, J.: Erythromycin @% gel in comparison with clindamycin phosphate 1% solution in acne vulgaris. J Am Acad Derm 16(4):822-7, 1987.
145. Leyden, J.J., and Bartelt, N: Comparison of Topical Antibiotic Ointments, a Wound Protectant and Antiseptics for the Treatment of Human Blister Wounds Contaminated with *Staphylococcus aureus*. Family Practice Vol. 24, No. 6, pp. 601-604, June 1987.
146. Leyden, J.J., McGinley, K.J., Mills, O.H., Kyriakopoulos, A.A., and Kligman, A.M.: Effects of Sulfur and Salicylic Acid in a Shampoo Base in the Treatment of Dandruff. A Double-Blind Study Using Corneocyte Counts and Clinical Grading. Cutis 39(6):557-61, 1987.
147. Nordstrom, K.M., McGinley, K.J., Cappiello, L., and Leyden, J.J.: Pitted keratolysis. The Role of *Micrococcus sedentarius*. Arch Derm 123:1320-1325, 1987.
148. Leyden, J.J., and James, W.: *Staphylococcus aureus* infection as a complication of Isotretinoin Therapy. Arch Derm 123:606-08, 1987.
149. Leyden, J.J., McGinley, K.J., Nordstrom, K.M., and Webster, G.F.: Skin microflora. J Invest Dermatol 88(3 Suppl): 65S-72S, March, 1987.
150. Leyden, J.J.: Pyoderma Pathophysiology and Management. Arch Derm 124:753-755, 1988.
151. Strauss, J.S., Cunningham, W.J., Leyden, J.J., Pochi, P.E., and Shalita, A.R.: Isotretinoin and teratogenecity. J.A.A.D 19(2 Pt. 1):353-354, August 1988.
152. Dzubow, L.M., Halpern, A.C., Leyden, J.J., Grossman, D.J., and McGinley, K.J: Comparison of preoperative skin preparations for the face. J.A.A.D 19(4):737-741, October 1988.
153. Shalita, A.R., Armstrong, R.B., Leyden, J.J., Pochi, P.E., and Strauss, J.S.: Isotretinoin revisited. Cutis 42(6A):1019, 1988.

154. Horn, W.A., Larson, E.L., McGinley, K.J., and Leyden, J.J.: Microbial Flora on the Hands of Health Care Personnel: Differences in Composition and antibacterial resistance. Infection Control Hosp Epidemiol 9:189-93, 1988.
155. Halpern, A.C., Leyden, J.J., Dzubow, L.M., and McGinley, K.J.: The incidence of bacteremia in skin surgery of the head and neck. J.A.A.D. 19:112-6, 1988.
156. McGinley, K.J., Larson, E.L., and Leyden, J.J.: Composition and density of Microflora in the subungual space of the hand. J Clin Micro 26(5):950-3, 1988.
157. Leyden, J.J.: Retinoids and Acne. J.A.A.D. 19:164-168, July, 1988.
158. Honig, P.J., Gribetz, B., Leyden, J.J., McGinley, K.J., and Burke, L.: Amoxicillin and Diaper Dermatitis. J.A.A.D 19:275-79, August 1988.
159. Nordstrom, K.M., McGinley, K.J., Kligman, A.M., and Leyden, J.J.: Sebaceous lipids in Xerosis of the Skin. J Cutaneous Aging and Cosmetic Dermatol 1:25-9, 1989.
160. Leyden, J.J.: Cellulitis (editorial) Arch Derm 125(6):823-824, June 1989.
161. Davis, J.A., Leyden, J.J., Grove, G.L., and Raynor, W.J.: Comparison of disposable diapers with fluff absorbent and fluff plus absorbent polymers: effects on skin hydration, skin pH, and diaper dermatitis. Pediatr Dermatol 6(2):102-108, June 1989.
162. Feingold, D.S., Hirschmann, J.V., and Leyden, J.J.: Bacterial Infections of the Skin. J.A.A.D. 20(3)469-475, 1989.
163. Nordstrom, K.M., Belcher, A.M., Epple, G., Greenfield, K.L., Leyden, J.J., and Smith, A.B.: Surface Microflora of the Saddle-Back Tamarin Monkey. J. Chemical Ecology 2:629-39, 1989.
164. Leyden, J.J., Grove, J.L., Grove, M.J., Thorne, E.G., and Lufrano, L.: Treatment of photodamaged Facial Skin with Topical Tretinoin. J.A.A.D. 21:638-644, 1989.
165. Grove, J.L., Grove, M.J., and Leyden, J.J.: Optical Profilometry: An Objective Method for Quantification of Facial Wrinkles. J.A.A.D 21:631-637, 1989.
166. Leyden, J.J., McGinley, K.J., Kates, S.G., and Myung, K.B.: Subungual bacterial of the hand: contribution of the glove juice test: efficacy of antimicrobial detergents. J Inf. Control & Hosp Epidemiol. 10:451-454, 1989.
167. Nishijima, S., McGinley, K.J., and Leyden, J.J.: Group JK (*Corynebacterium jeikeium* sp no.) Isolated from Japanese Skin Flora. Jpn J Dermatol 99:1121-1123, 1989.
168. Aly, R., Maibach, H.I., Bagatell, F., Dittmar, W., Hanel, H., Falanga, V., Leyden, J.J., Roth, H.L., Stoughton, R.B., Willis, I., Abrams, B.B., and Lakshminarayanan, M.: Ciclopirox Olamine Lotion 1%: Bioequivalence to Ciclopirox Olamine Cream 1% and clinical efficacy in Tinea Pedis. Clinical Therapeutics Vol. II, Number 3:290-303, 1989.
169. Nordstrom, K.M., McGinley, K.J., Lessin, S.R., and Leyden, J.J.: Neutral Lipid Composition of *Fordyce* Granules. Br J Derm 121, 1989.

170. Nishijima, S., McGinley, K.J., and Leyden, J.J.: Cutaneous Microbiologic Profiles of Japanese Adults Residing in the United States of America. Jpn J Dermatol 100 (2): 175-183, February 1990.
171. Taylor, C.R., Stern, R.S., Leyden, J.J., and Gilchrest, B.A.: Photoaging/photodamage and photoprotection. J.A.A.D. 22(1):1-15, January 1990.
172. Kruger, G., and Leyden, J.J.: Attraction of M.D.-Ph.D.s to dermatology (letter:comment). Arch Derm 126(2):248, February 1990.
173. Leyden, J.J.: Clinical features of aging skin. Br J Derm 122:Suppl 35:1-3, April, 1990.
174. Leyden, J.J.: Tretinoin therapy in photoaging: historical perspective. Br J Derm 122 Suppl 35:83-86, April 1990.
175. Kates, S.G., Nordstrom, K.M., McGinley, K.J., and Leyden, J.J.: Microbial Ecology of Interdigital Infections of Toe Web Spaces. J.A.A.D. 22:578-582, 1990.
176. Kates, S.G., Nordstrom, K.M., McGinley, K.J., and Leyden, J.J.: The Antibacterial Efficacy of Econazole Nitrate in Interdigital Toe Web Infections. J.A.A.D. 22:483-586, 1990.
177. Leyden, J.J.: Mupirocin: A New Topical Antibiotic. J.A.A.D. Volume 22, Number 5:879-883, 1990.
178. Freundlich, B., Werth, V.P., Rook, A.H., O'Connor, C.R., Schumacher, H.R., Leyden, J.J., and Stolley, P.D.: L-Tryptophan Ingestion Associated with Eosinophilic Fascitis but Not Progressive Systemic Sclerosis. Annals of Int. Medicine. 112, Number 10:748-762, May 1990.
179. Pochi, P.E., Shalita, A.R., Strauss, J.S., Webster, S.B., Cunliffe, W.J., Katz, H.I., Kligman, A.M., Leyden, J.J., Lookingbill, D.P., Plewig, G., et. al.: Report of the Consensus Conference on Acne Classification, Washington, D.C., March 24 and 25, 1990. J.A.A.D., 24():495-500, March 1991.
180. Wester, R.C., Patel, R., Nacht, S., Leyden, J.J., Melendres, J., and Maibach, H.: Controlled Release of Benzoyl Peroxide From a Porous Microsphere Polymeric System can Reduce Topical Irritancy. J.A.A.D. 24:720-726, May 1991.
181. Zeng, X.N., Leyden, J.J., Lawley, H.J., Sawano, K., Nohara, I., and Preti, G.: Analysis of characteristic odors from male axillae. Journal of Chem Ecology. Vol. 17, Nov. 7, 1991.
182. Eichenfield, L.F. and Leyden, J.J.: Acne: Current concepts of pathogenesis and approach to rational treatment. Pediatrician, 18(3):218-23, 1991.
183. Leyden, J.J.: Albert Kligman - Master of Dermatology (editorial). Arch Derm 127(9):1392-1393, September 1991.
184. Kates, S.G., McGinley, K.L., Larson, E.I., and Leyden, J.J.: Indigenous multiresistant bacteria from flowers in hospital and nonhospital environments. Am J Infect Control 19:156-161, 1991.

185. Grove, G.L., Grove M.J., Leyden, J.J., Lufrano, L., Schwab, B., Perry, B.H., and Thorne, E.G.: Skin replica analysis of photodamaged skin after therapy with tretinoin emollient cream. J.A.A.D. 25(2-1):231-237, 1991.
186. Leyden, J.J., McGinley, K.J., Kaminer, M.S., Bakel, J., Nishijima, S., Grove, M.J., and Grove, G.L.: Computerized image analysis of full-hand touch plates: a method for quantification of surface bacteria on hands and the effect of antimicrobial agents. J Hosp. Inf 18:13-22, Suppl. B, June 1991.
187. Larson, E.L., McGinley, K.J., Foglia, A., Leyden, J.J., Boland V., Larson, J. Altobelli, L.C., and Salazar-Lindo, Eduardo: Handwashing practices and resistance and density of bacterial hand flora on pediatric units in Lima, Peru. Am J Infect Control 20:65-72, April 1992.
188. Lavker, R.M., Kaibey, D., and Leyden, J.J.: Effect of topical ammonium lactate on cutaneous atrophy from a potent topical corticosteroid. J.A.A.D. 25(4):535-44, April 1992.
189. Zeng, X.M., Leyden, J.J., Brand, J.G., Spielman, A.I., McGinley, K.J., Preti, G: An Investigation of Human Apocrine Gland Secretion for Axillary Odor Precursor. J of Chem Ecology 18:1039-55, 1992.
190. Leyden, J.J.: Open-Label Evaluation of optical Antimicrobial and Anti-Acne Preparations for Effectiveness Versus *Propionibacterium Acnes* in Vivo. Cutis 49(6A):8-11, June 1992.
191. Berman, B., Ellis, C., Leyden, J.J., Lowe, N., Savin, R., Shupack, J., Stiller, M., Tschen, E., Zaias, N., and Birnbaum, J.E.: Efficacy of a 1-week twice-daily regimen of terbinafine 1% cream in the treatment of interdigital tinea pedis. Results of placebo-controlled, double-blind, multicenter trials. J.A.A.D. 26(6):956-60, June 1992.
192. Harkaway, S.K., McGinley, K.J., Foglia, A.N., Lee, W.L., Fried, F., Shalita, A.R., and Leyden, J.J.: Antibiotic resistance patterns in coagulase-negative staphylococci after treatment with topical erythromycin, benzoyl peroxide, and combination therapy. Br J Derm 126:586-590, June 1992.
193. Lavker, R.M., Leyden, J.J., and Thorne, E.G.: An ultrastructural study of topical tretinoin on microcomedones, Clin Ther, 14:773-80, 1992.
194. Leyden, J.J.: Review of mupirocin ointment in the treatment of impetigo. Clin Pediatr. 31:549-53, Sept. 1992.
195. Leyden, J.J.: Topical tretinoin no panacea for photodamaged skin. Clev. Clin J Med 60:88-9, Jan-Feb 1993.
196. Kligman, A.M., Leyden, J.J. Treatment of photodamaged skin with topical tretinoin. [Review] [22 refs]. Skin Pharmacology. 6 Suppl 1:78-82, 1993.
197. Leyden, J.J., Aly, R., Tinea pedis. [Review] [24 refs]. Seminars in Dermatology. 12(4):280-4, 1993 Dec.
198. Namura, S., Nishijima, S., McGinley, K.J., and Leyden, J.J.: A Study of the Efficacy of Antimicrobial Detergents for Hand Washing: Using the Full-hand Touch Plates Method. J Dermatol 20(2):88-93, Feb. 1993.

199. Leyden, J.J.: Progression of Interdigital Foot Infections from Simple Fungal Infections to Complex Bacterial Infections. J.A.A.D. 28:S7-S11, May 1993.
200. Leyden, J.J.: Risk Assessment of Products Used on Human Skin. Contact Dermatitis 4:158-163, 1993.
201. Humphreys, T.R., and Leyden, J.J.: Acute reversible central nervous system toxicity associated with low-dose oral cyclosporine therapy. J.A.A.D. 29(3):490-2. Sept/ 1993. Complete Record.
202. Honig, P.J., Caputo, G.L., Leyden, J.J., McGinley, K., Selbst, S.M., and McGravey, A.R.: Microbiology of kerions. Journal of Pediatrics 123(3):422-4, Sept. 1993.
203. Leyden, J.J.: Tinea Pedis pathophysiology and Treatment. J.A.A.D. 16:31-33, 1994.
204. Savin, R., Atton, A.V., Bergstresser, P.R., Elewski, B., Jones, H.E., Levine, N., Leyden, J.J., Monroe, A., Pandya, A., Shupak, J., Stiller, M., Tschien, E., Weinstein, G., Zaias, N., and Birnbaum, J.E.: Efficacy of Terbinafine 1% Cream in the Treatment of Moccasin-Type Tinea Pedis: Results of Placebo-Controlled Multicenter Trials. J Am Acad Dermatol 30:663-7, 1994.
205. Honig, P.J., Caputo, G.L., Leyden, J.J., McGinley, K., Selbst, S.M., and McGravey, A.R.: Treatment of Kerions. Pediatric Dermatology 11(1):69-71, March, 1994.
206. Mowad, C.M., Nguyen TV, Elenitsas, R., Leyden, J.J.. Bleomycin-induced flagellate dermatitis; a clinical and histopathological review. [Review] [12 refs] British Journal of Dermatology 13(5):700-2, 1994 Nov.
207. Spielman, A.I., Zeng, X.N., Leyden, J.J., and Preti, G.: Proteinaceous Precursors of Human Axillary Odor: Isolation of Two Novel Odor Binding Proteins. Experientia 50:40-47, 1995.
208. Leyden, J.J., Lavker, R.M., and Kaibey, K.H.: Uva-A more important factor in Chronic Photodamage than previously recognized. J Geriatr Dermatol, Vol. 3 Suppl. A, March 1995.
209. Leyden, J.J., Lavker, R.M., Grove, G., and Kays, K.H.: Alpha Hydroxy Acids are more than moisturizers. J Geriatr Dermatol Vol. 3 Suppl. A, March, 1995.
210. Leyden, J.J.: New understandings of the pathogenesis of acne. J.A.D.D. 32(5):S15-S25, May 1995.
211. Marks, J.G., Jr., Helm, K.F., Krueger, G.G., Griffiths, C.E., Guzzo, C.A., and Leyden, J.J.: Contact dermatitis from Topical Auranofin. J.A.A.D. 32(5 Pt 1):813-4, May 1995.
212. Vowels, B.R., Yang, S., and Leyden, J.J.: Induction of proinflammatory cytokines by a soluble factor of *Propionibacterium acnes*: implications for chronic inflammatory acne. Infection & Immunity. 63(8):3158-65, Aug. 1995.
213. Williams, J.V., Honig, P.J., McGinley, K.J., and Leyden, J.J.: Semiquantitative study of tinea capitis and the asymptomatic carrier state in inner-city school children. Pediatrics. 96(2 Pt 1):265-7, Aug. 1995.

214. Helm, K.F., Marks, J.G. Jr., Leyden, J.J., Guzzo, C., Krueger, G.G., Griffiths, T.W., and Griffiths, C.E.: Topical auranofin ointment for the treatment of plaque psoriasis. J.A.A.D 33(3):517-9, Sept. 1995.
215. Mowad, C.M., McGinley, K.J., Foglia, A., and Leyden, J.J.: The role of extracellular polysaccharide substance produced by *Staphylococcus epidermidis* in miliaria. Journal of the American Academy of Dermatology 33(5 Pt 1):729-33, Nov. 1995.
216. Leyden, J.J., McGinley, K.J., Foglia, A.N., Wahrman, J.E., Groper, C.N., and Vowels, B.R.: A new method for in vivo evaluation of antimicrobial agents by translocation of complex dense populations of cutaneous bacteria. Skin Pharmacol. 91(1):60-68, 1996.
217. Zeng, C., Spielman, A.I., Vowels, B.R., Leyden, J.J., Biemann, K., and Preti, G.: A human axillary odorant is carried by apolipoprotein D. Proceedings of the National Academy of Sciences of the United States of America 93(13):6626-30, June 1996.
218. Margolis, D.J., Attie, M., Leyden, J.J.: Effects of isotretinoin on bone mineralization during routine therapy with isotretinoin for acne vulgaris. Arch Derm. 132(7):769-74, July 1996.
219. Vowels, B.R., Feingold, D.S., Sloughfy, C., Foglia, A., Konnikov, N., Ordoukhanian, E., Starkey, P., and Leyden, J.J.: Effects of topical erythromycin on ecology of aerobic cutaneous bacterial flora. Antimicrobial Agents and Chemotherapy. 40(11):2598-2604, 1996.
220. Leyden, J.J., Kaidbey, K., and Gans, E.H.: The antimicrobial effects in vivo of minocycline, doxycycline and tetracycline in humans. Journal of Dermatological Treatment 7:223-225, Nov. 1996.
221. Leyden, J.J., Cunliffe, W.J., Shalita, A.R., Strauss, J.S., and Aly, R.: Resistance of *P. acnes* to antibiotics used in the treatment of acne. J of Geriatric Dermatol, Vol. 5, Suppl. A., Jan/Feb 1997.
222. Brennan B., Leyden, J.J.: Overview of topical therapy for common superficial fungal infections and the role of new topical agents. J.A.A.D. 36(2 Pt.1):S3-8, Feb. 1997.
223. Leyden, J.J.: Oral isotretinoin. Dermatology. 195:29-33, 1997.
224. Cunliffe, W.J., Leyden, J.J., et al: Roaccutane Treatment Guidelines. Dermatology. 194:351-357, 1997.
225. Cunliffe, W.J., van de Kerkhof, P.C., Caputo, R., Cavicchini, S., Cooper, A., Fyrand, O.L., Gollnick, H., Layton, A.M., Leyden, J.J., Mascaro, J.M., Ortonne, J.P., Shalita, A.: Roaccutane treatment guidelines: Results of an international survey [see comments]. Dermatology. 194(4):351-7, 1997.
226. Coates, P., Adams, C.A., Cunliffe, W.J., McGinley, K.T., Eady E.A., Leyden, J.J., Ravenscroft, J., Vyaknam, S., Vowels, B. Does oral isotretinoin prevent *Propionibacterium acnes* resistance? [Review] [25 refs]. Dermatology. 195 Suppl 1:4-9; discussion 38-40, 1997.

227. Leyden, J.J., Oral isotretinoin. How can we treat difficult acne patients? [Review] [5 refs] Dermatology. 195 Suppl. 1:29-33; discussion 38-40, 1997.
228. Leyden, J.J.: Therapy for acne vulgaris. The New England Journal of Medicine, 336:1156-1162, April, 1997.
229. Drake, L.A., Shear, N.H. Arlette, J.P., Cloutier, R., Danby F.W., Elewski, B.E., Garnis-Jones, S., Giroux, J.M., Gratton, D., Gulliver, W., Hull, P., Jones, H.E., Journet, M., Krol, A.L., Leyden, J.J., Maddin, S.C., Ross, J.B., Savin, R.C., Scher, R.K., Sibbald, G.R., Tawfik, N.H., Zaias, N., Tolpin, M., Evans, S., Birnbaum, J.E., et al.: Oral terbinafine in the treatment of toenail onychomycosis: North American multicenter trial. JAAD. 37(5 Pt. 1):740-5, Nov., 1997.
230. Leyden, J.J., McGinley, K.J., Vowels, B. *Propionibacterium acnes* colonization in acne and nonacne. Dermatology. 196(1):55-8, 1998.
231. 231. Leyden, JJ. Topical antimicrobial agents and acne therapy. Dermatologic Therapy 6:35-38, March 1998
232. Leyden, J.J.: Topical treatment of acne vulgaris: retinoids and cutaneous irritation. [Review] [17 refs] Journal of the American Academy of Dermatology. 38(4):S1-4, April, 1998.
233. Leyden, J.J.: Pharmacokinetics and pharmacology of terbinafine and itraconazole [see comments]. [Review] [11 refs] J.A.A.D. 38(5 Pt. 3):S42-7, May, 1998.
234. Williams, J.V., Vowels, B.R., Honig, P.J., Leyden, J.J.: *S. aureus* isolation from the lesions, the hands, and the anterior nares of patients with atopic dermatitis. Pediatric Dermatology. 15(3):194-8, May-June, 1998.
235. Ling, M.R., Swinyer, L.J., Jarratt, M.T., Falo, L., Monroe, E.W., Tharp, M., Kalivas, J., Weinstein, G.D., Asarch, R.G., Drake, L., Martin, A.G., Leyden, J.J., Cook, J., Pariser, D.M., Pariser, R., Thiers, B.H., Lebwohl, M.G., Babel, D., Stewart D.M., Eaglstein, W.H., Falanga, V., Katz, H.I., Bergfeld, W.F., Hanifin, J.M., Young, M.R., et al: Once-weekly fluconazole (450 mg.) for 4, 6, or 9 months of treatment for distal subungual onychomycosis of the toenail. J.A.A.D. 38(6 Pt. 2):S95-102, June, 1998.
236. Drake, L., Babel, D., Stewart, D.M., Rich, L., Ling, M.R., Breneman, D., Scher, R.K., Martin, A.G., Pariser, D.M., Pariser, R.J., Ellis, C.N., Kang, S., Katz, H.I., McDonald, C.J., Muglia, J., Savin, R.C., Webster, G., Elewski, B.E., Leyden, J.J., Bucko, A.D., Tschien, E.H., Hanifin, J.M., Morman, M.R., Shupack, J.L., Greer, D.L., et. al. Once-weekly fluconazole (150, 300, or 450 mg.) in the treatment of distal subungual onychomycosis of the fingernail. J.A.A.D. 38(6 Pt. 2):S87-94, June, 1998.
237. Spielman, A.I., Sunavala G., Harmony, J.A., Stuart, W.D., Leyden, J.J., Turner, G., Vowels, B.R., Lam, W.C., Yang, S., Preti, G. Identification and immunohistochemical localization of protein precursors to human axillary odors in apocrine glands and secretions. Archives of Dermatology. 134(7):813-8, July, 1998.
238. Leyden, J.J.: The role of isotretinoin in the treatment of acne: personal observations. [Review] [24 refs]. J.A.A.D. 39 (2 Pt. 3):S45-9, August, 1998.

239. Miller, J.J., Roling, D., Spiers, E., Davies, A., Rawlings, A., Leyden J.J.: Palmoplantar keratoderma associated with hypothyroidism [letter].[Review] [7 refs]. British Journal of Dermatology. 139(4):741-2, October, 1998.
240. Leyden, J.J.: Treatment of photodamaged skin with topical tretinoin: an update. Plastic & Reconstructive Surgery. 102(5):1667-71; discussion 1672-5, October, 1998.
241. Williams, J.V., Vowels, B., Honig, P., Leyden, J.J.: Staphylococcus aureus isolation from the lesions, the hands, and anterior nares of patients with atopic dermatitis. Journal of Emergency Medicine 17(1):207-11, Jan.-Feb., 1999.
242. Leyden, J.J.: Update on tinea capitis and new antifungal therapies. Closing remarks [Journal Article] Pediatric Infectious Disease Journal. 18(2):215-6, Feb., 1999.
243. Leyden JJ, Dunlap F, Miller B, Winters P, Lebwohl M, Hecker D, Kraus S, Baldwin H, Shalita A, Draelos Z, Markou M, Thiboutot D, Rapaport M, Kang S, Kelly T, Pariser D, Webster G, Hordinsky M, Rietschel R, Katz HI, Terranella L, Best S, Round E, Waldstreicher J.: Finasteride in the treatment of men with frontal male pattern hair loss. J.A.A.D. 40(6 Pt. 1):930-7, Jun., 1999.
244. Bershad S, Poulin YP, Berson DS, Sabeian J, Brodell RT, Shalita AR, Kakita L, Tanghetti E, Leyden JJ, Webster GF, Miller BH: Topical retinoids in the treatment of acne vulgaris. [Review] [33 refs] Cutis. 64(2 Suppl):8-20; quiz 21-3, Aug., 1999.
245. Strauss JS, Gottlieb AB, Jones T, Koo JY, Leyden JJ, Lucky A, Pappas AA, McLane J, Leach EE: Concomitant administration of Vitamin E does not change the side effects of isotretinoin as used in acne vulgaris. A Randomized Trial. J.A.A.D. 43:777-784, 2000.
246. Shih HA, Kao DM, Elenitsas R, Leyden JJ: Livedo reticularis, ulcers and peripheral gangrene: Cutaneous manifestations of primary hyperoxaluria. Arch Dermatol 136(10):1272-4, 2000.
247. Shapiro M, Smith KJ, James WD, Giblin WJ, Margolis DJ, Foglia A, McGinley K, Leyden JJ: Cutaneous microenvironment of human immunodeficiency virus (HIV)-seropositive and HIV-seronegative individuals, with special reference to Staphylococcus aureus colonization. Journal of Clinical Microbiology, Vol 38:(9) 3174-3178, Sept., 2000
248. Ross JL, Snelling AM, Eady EA, Cove JH, Cunliffe WJ, Leyden JJ, Collignon P, Dreno B, Reynaud A, Fluhr J, Oshima S. Phenotypic and genotypic characterization of antibiotic-resistance *Propionibacterium acnes* isolated from acne patients attending dermatology clinics in Europe, the U.S.A., Japan and Australia. Br J of Dermatol. 144(2):339-46, Feb.2001
249. Leyden JJ, Hickman JG, Jarratt MT, Stewart DM, Levy SF. The efficacy and safety of a combination benzoyl peroxide/clindamycin topical gel compared with benzoyl peroxide alone and a benzoyl peroxide/erythromycin combination product. J of Cutaneous Med & Surgery. 5(1):37-42, Jan-Feb.2001.

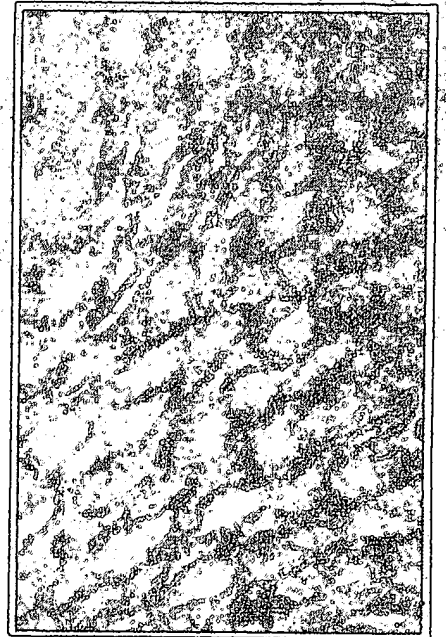
250. Strauss JS, Leyden JJ, Lucky AW, Lookingbill DP, Drake LA, Hanifin JM, Lowe NJ et.al. A randomized trial of the efficacy of a new micronized formulation versus a standard formulation of isotretinoin in patients with severe recalcitrant nodular acne. *J.A.A.D.* 45(2):187-95, Aug.2001.
251. Strauss JS, Leyden JJ, Lucky AW, Lookingbill DP, Drake LA, Hanifin JM, Lowe NJ et.al. Safety of a new micronized formulation of isotretinoin in patients with severe recalcitrant nodular acne: A randomized trial comparing micronized isotretinoin with standard isotretinoin. *J.A.A.D.*45(2):196-207, Aug.2001
252. Akin F, Spraker M, Aly R, Leyden J, Raynor W, Landin W. Effects of breathable disposable diapers: reduced prevalence of *Candida* and common diaper dermatitis. *Pediatric Dermatology.* 18(4):282-90, Jul-Aug 2001.
253. Leyden J, Adapalene in clinical practice. *Cutis.* 68(4 Suppl):7-9, Oct. 2001.
254. Leyden J, Current issues in antimicrobial therapy for the treatment of acne. *J.E.A.D.V.* (3 Suppl): 51-5, 2001.
255. Lebwohl MG, Daniel CR, Leyden J, Mormon M et.al. Efficacy and safety of terbinafine for nondermatophyte and mixed nondermatophyte and dermatophyte toenail onychomycosis. *Intl J of Derm.* 40(5):358-60 May, 2001.
256. Leyden J, Lowe N, Kakita L, Draelos Z. Comparison of treatment of acne vulgaris with alternate-day applications of tazarotene 0.1% gel and once daily applications of adapalene 0.1% gel: a randomized study. *Cutis.* 67(6 Suppl):6-10, June, 2001.
257. Leyden J, Juvenile tinea capitis. *Cutis.* 67(5 Suppl):27, May, 2001.
258. Leyden J, Hickman JG, Jarratt MT, Stewart DM, Levy SF. The efficacy and safety of a combination benzoyl peroxide/clindamycin topical gel compared with benzoyl peroxide alone and a benzoyl peroxide/erythromycin combination product. *J of Cutaneous Med & Surg.* 5(1):37-42, 2001.
259. Leyden J, What is photoaged skin? *European J of Derm.* 11(2)165-7, Mar-Apr. 2001
260. Ellis CN, Leyden J, Katz HI, Goldfarb MT et.al. Therapeutic studies with a new combination benzoyl peroxide/clindamycin topical gel in acne vulgaris. *Cutis.* 67(2 Suppl):13-20, Feb. 2001.
261. Leyden J. Are 2 combined antimicrobial mechanisms better than 1 for the treatment of acne vulgaris? Clinical and antimicrobial results of a topical combination product containing 1% clindamycin and 5% benzoyl peroxide. *Cutis.* 67(2 Suppl):5-7, Feb. 2001.
262. Chung NM, Marshall CM, Leyden JJ, Lavker RM, Jensen PJ, Risse Marsh BC. Sodium Dodecyl Sulfate induces plasminogen activator inhibitor Type 2 expression in epidermal keratinocytes in-vivo and in-vitro . *J.I.D.* 117(3):647-53, Sept. 2001.
263. Leyden JJ, Grove GL, Correspondence. Vernix Caseosa: A natural biofilm in very low birthweight infants. *Pediatric Dermatology* Vol 18:4 361, July 2001.

264. Leyden JJ, The evolving role of *Propionibacterium acnes* in acne. Seminars in Cutaneous Medicine and Surgery, Vol 20:3 139-143, September 2001.
265. Leyden JJ, Grove G.L., Randomized Facial Tolerability Studies Comparing Gel Formulations of Retinoids Used to Treat Acne Vulgaris. Cutis Vol 67:17-27, June 2001.
266. Leyden JJ, Kaidbey K, Levy SF. The combination formulation of clindamycin 1% plus benzoyl peroxide 5% versus 3 different formulations of topical clindamycin alone in the reduction of *Propionibacterium acnes*: an in vivo comparative study. Am J Clin Dermatol. 2:263-266, 2001.
267. Kang S, Leyden J, Lowe NJ, Ortonne JP et.al. Tazarotene cream for the treatment of facial photodamage: a multi- centered, investigator masked, randomized trial. Arch Derm. 137(12):1597-604, Dec. 2001.
268. Leyden JJ, Levy SF. The development of antibiotic resistance in *Propionibacterium acnes*. Cutis. 67(2 suppl):21-24, 2001.
269. Leyden J. Effect of topical ben zoyl peroxide/clindamycin versus topical clindamycin and vehicle in the reduction of *Propionibacterium acnes*. Cutis. 69(6):475-80, June, 2002.
270. Phillips TJ, Gottlieb AB, Leyden JJ, Lowe NJ et.al. Tazarotene Cream Photodamage clinical Study Group. Efficacy of 0.1% tazarotene cream for the treatment of photodamage: a 12-month multicenter, randomized trial. Arch Derm. 138(11):1486-93, Nov.2002.
271. Leyden JJ, Mills O, Thornsberry C et al. Bacterial resistance and therapeutic outcome following three months of topical acne therapy with 2% erythromycin gel versus its vehicle. Acta Derm Venereol 82: 260-265, 2002.
272. Leyden JJ, Elewski BE, Rinaldi MG, Atillasoy E. Office practice – based confirmation of onychomycosis. Arch Intern Med. Vol 162:2133-2138, October 2002.
273. Leyden JJ, Tanghetti EA, Miller B, Ung M, Berson D, Lee J. Once daily tazarotene 0.1% gel versus once-daily tretinoin 0.1% microsphere gel for the treatment of facial acne vulgaris. Multicenter study. Cutis. 69(2 Suppl):12-9, Feb. 2002.
274. Preti G, Leyden JJ. Body odor in dermatologic diagnosis. Comment. Cutis. 69(4):315; discussion 316, April, 2002.
275. Grove GL, Grove MJ, Bates NT, Wagman LM, Leyden JJ. Scrotal temperatures do not differ among young boys wearing disposable or reusable diapers. Skin Research & Technology. 8 (4):260-70, Nov. 2002.
276. Phillips TJ, Gottlieb AB, Leyden JJ, Lowe NJ, Lew-Kaya DA, Sefton J, Walker PS, Gibson JR; Tazarotene Cream Photodamage Clinical Study Group. Efficacy of 0.1% tazarotene cream for the treatment of photodamage: a 12-month multicenter, randomized trial. Arch Dermatol. 2002 Nov;138(11):1486-93.
277. Levy RM, Huang EY, Roling D, Leyden JJ, Margolis DJ. Effect of antibiotics on the oropharyngeal flora in patients with acne. Arch Derm. 139(4):467-71. April, 2003

278. Skidmore R, Kovach R, Walker C, Leyden JJ et.al. Effects of subantimicrobial-dose doxycycline in the treatment of moderate acne. Arch Derm. 139(4):459-64, April, 2003.
279. Lehrer MS, Crawford GH, Gelfand JM, Leyden JJ, Vittorio CC. Effect of wax epilation before hair removal with a long-pulsed alexandrite laser: a pilot study. Dermatologic Surgery. 29(2):118-22;discussion 122-3, Feb. 2003.
280. Eady EA, Gloor M, Leyden JJ. Propionibacterium acnes resistance: a worldwide problem. Dermatology. 2003;206(1):54-6.
281. Preti G, Wysocki CJ, Barnhart KT, Sondheimer SJ, Leyden JJ. Male axillary extracts contain pheromones that affect pulsatile secretion of luteinizing hormone and mood in women recipients. Biol Reprod. 2003 Jun;68(6):2107-13.
282. Gollnick H, Cunliffe W, Berson D, Dreno B, Finlay A, Leyden JJ, Shalita AR, Thiboutot D; Global Alliance to Improve Outcomes in Acne. Management of acne: a report from a Global Alliance to Improve Outcomes in Acne. J Am Acad Dermatol. 2003 Jul;49(1 Suppl):S1-37.
283. Berson DS, Chalker DK, Harper JC, Leyden JJ, Shalita AR, Webster GF. Current concepts in the treatment of acne: report from a clinical roundtable. Cutis. 2003 Jul;72(1 Suppl):5-13.
284. Leyden JJ. Acne vulgaris is a multifactorial disease. J Am Acad Dermatol. 2003 Sep;49(3 Suppl):S199.
285. Leyden JJ. A review of the use of combination therapies for the treatment of acne vulgaris. J Am Acad Dermatol. 2003 Sep;49(3 Suppl):S200-10.
286. Leyden JJ. Topical treatment for the inflamed lesion in acne, rosacea, and pseudofolliculitis barbae. Cutis. 2004 Jun;73(6 Suppl):4-5.
287. Leyden JJ. Antibiotic resistance in the topical treatment of acne vulgaris. Cutis. 2004 Jun;73(6 Suppl):6-10.
288. Leyden JJ, Thiboutot D, Shalita A. Photographic review of results from a clinical study comparing benzoyl peroxide 5%/clindamycin 1% topical gel with vehicle in the treatment of rosacea. Cutis. 2004 Jun;73(6 Suppl):11-7.
289. Leyden JJ. Meta-analysis of topical tazarotene in the treatment of mild to moderate acne. Cutis. 2004 Oct;74(4 Suppl):9-15.
290. Shalita AR, Berson DS, Thiboutot DM, Leyden JJ, Parizadeh D, Sefton J, Walker PS, Gibson JR. Tazarotene Cream in Acne Clinical Study Investigator Group. Effects of tazarotene 0.1 % cream in the treatment of facial acne vulgaris: pooled results from two multicenter, double-blind, randomized, vehicle-controlled, parallel-group trials. Clin Ther. 2004 Nov;26(11):1865-73.
291. Levy RM, Leyden JJ, Margolis DJ. Colonisation rates of Streptococcus pyogenes and Staphylococcus aureus in the oropharynx of a young adult population. Clin Microbiol Infect. 2005 Feb;11(2):153-5.

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Seborrheic Dermatitis

Seborrheic dermatitis is a common chronic papulosquamous dermatosis that is usually easily recognized. It affects infants and adults and is often associated with increased sebum production (seborrhea) of the scalp and the sebaceous follicle-rich areas of the face and trunk. The affected skin is pink, edematous, and covered with yellow-brown scales and crusts. The disease varies from mild to severe, including psoriasiform or pityriasiform patterns and erythroderma.¹ Seborrheic dermatitis is one of the most common skin manifestations in patients with human immunodeficiency virus (HIV) infection.² Consequently, it is included in the spectrum of premonitory lesions and should be carefully evaluated in high-risk patients.

INCIDENCE

Seborrheic dermatitis has two age peaks, one in infancy within the first 3 months of life and the second around the fourth to the seventh decades of life. No data are available on the exact incidence of seborrheic dermatitis in infants, but the disorder is common. The disease in adults is believed to be more common than psoriasis, for example, affecting at least 3 to 5 percent of the population in the United States.³ Men are affected more often than women in all age groups. There does not appear to be any racial predilection. Seborrheic dermatitis is found in up to 85 percent of patients with HIV infection.²

ETIOLOGY AND PATHOGENESIS

Although many theories abound, the cause of seborrheic dermatitis remains unknown.

Seborrhea

The disease is associated with oily-looking skin (seborrhea oleosa), although an increased sebum production cannot always be detected in these patients.⁴ Even if seborrhea does provide a predisposition, seborrheic dermatitis is not a disease of the sebaceous glands. The high incidence of seborrheic dermatitis in newborns parallels the size and activity of the sebaceous glands at this age. It has been shown that newborns have large sebaceous glands with high sebum secretion rates similar to adults.⁵ In childhood, sebum production and seborrheic dermatitis are closely connected. In adulthood, however, they are not, as the sebaceous gland activity peaks in early puberty and decades later seborrheic dermatitis may occur.

The sites of predilection—face, ears, scalp, and upper part of the trunk—are particularly rich in sebaceous follicles. Two diseases are prevalent in these regions: seborrheic dermatitis and acne. In patients

with seborrheic dermatitis, the sebaceous glands are often particularly large on cross-sectional histologic specimens. In one study, skin surface lipids were not elevated but the lipid composition was characterized by an increased proportion of cholesterol, triglycerides, and paraffin, and a decrease in squalene, free fatty acids, and wax esters.⁶ However, mild abnormalities in the skin surface lipids could well result from the ineffective keratinization, which is often demonstrable histopathologically. Seborrheic dermatitis seems to be more frequent in patients with parkinsonism, in whom sebum secretion is increased. Similarly, after reduction of sebum production induced by levodopa and by promestriene, seborrheic dermatitis may improve.

The synonym *eczéma flannelaire* stems from the idea that a retention of skin surface lipids by clothing and rubbing of the rough textiles on the skin—cotton (flannel), wool, or synthetic underwear in particular—promotes or aggravates seborrheic dermatitis.

Microbial Effects

Unna and Sabouraud, who were among the first to describe the disease, favored an etiology involving bacteria, yeasts, or both. This hypothesis has remained unsupported, although bacteria and yeast can be isolated in great quantities from affected skin sites.

In infancy, *Candida albicans* is often found in dermatitic skin lesions and in stool specimens. Although intracutaneous tests with candidin, positive agglutinating antibodies in serum, and positive lymphocyte-transformation tests in affected infants revealed sensitization to *C. albicans*, these observations cannot be convincingly linked to the pathogenesis.

Aerobic bacteria were recovered from the scalp of patients with seborrheic dermatitis (140,000 bacteria/cm² versus 280,000 in normal individuals and 250,000 in persons with dandruff). In contrast, *Staphylococcus aureus* was rarely seen in normal persons or those with dandruff. *Staphylococcus* was recovered in about 20 percent of patients with seborrheic dermatitis, accounting for an average of about 32 percent of the total skin flora.⁷

Propionibacterium acnes counts were low in patients with seborrheic dermatitis (7550 bacteria/cm² in those without dandruff). The small quantities of *P. acnes* in patients with seborrheic dermatitis may explain the low yield of free fatty acids from their skin surfaces.

The lipophilic yeast *Pityrosporum* is abundant in normal skin (504,000 organisms/cm² versus 922,000 in individuals with dandruff and 665,000 in patients with seborrheic dermatitis).⁷ This organism has received particular attention in recent years. Some authors claim strong evidence in favor of a pathogenic role for these microbes, whereas others do not share this view. Their argument is that *Pityrosporum ovale* is not the causative organism, but is merely present in large numbers. In patients with pityriasis versicolor⁸ and *Pityrosporum* folliculitis,⁹ seborrheic dermatitis has been found in a higher percentage than expected. Clearing of seborrheic dermatitis by selenium sulfide and continued suppression of *P. ovale* with topical amphotericin B caused a

relapse of the disease on inflamed scalp skin.¹⁰ In seborrheic dermatitis, both normal and high levels of serum antibodies against *P. ovale* have been demonstrated. A cell-mediated immune response to *P. ovale* has been found in normal individuals using *Pityrosporum* extracts in lymphocyte-transformation studies.¹¹ Overgrowth of *P. ovale* may lead to inflammation, either through introduction of yeast-derived metabolic products into the epidermis or as a result of the presence of yeast cells on the skin surface. The mechanism of production of inflammation would likely then be through Langerhans cell and T lymphocyte activation by *Pityrosporum* or its by-products. When *P. ovale* comes into contact with serum, it can activate complement via the direct and alternative pathways and this may play some part in the introduction of inflammation.¹² A possible role for this yeast in the pathogenesis of seborrheic dermatitis is supported by the fact that seborrheic dermatitis-like lesions have been shown to be reproducible in animal models by inoculation of *P. ovale*.¹³

Miscellaneous

DRUGS Several drugs have been reported to produce seborrheic dermatitis-like lesions, including arsenic, gold, methyldopa, cimetidine, and neuroleptics.

NEUROTRANSMITTER ABNORMALITIES Seborrheic dermatitis is often associated with a variety of neurologic abnormalities, pointing to a possible influence of the nervous system. These neurologic conditions include postencephalitic parkinsonism, epilepsy, supraorbital injury, facial paralysis, unilateral injury to the ganglion of Gasser, polyomyelitis, syringomyelia, and quadriplegia. Emotional stress seems to aggravate the disease; a high rate of seborrhea is reported among combat troops in times of war.

PHYSICAL FACTORS It has been suggested that cutaneous blood flow and skin temperature may be responsible for the distribution of seborrheic dermatitis.¹⁴ Seasonal variations in temperature and humidity are related to the course of the disease. Low fall and winter temperatures and low humidity in centrally heated rooms are known to worsen the condition. Seborrheic dermatitis of the face was observed in 8 percent of 247 patients receiving PUVA therapy for psoriasis and occurred within a few days to 2 weeks after the beginning of treatment;¹⁵ the patients had no previous history of facial psoriasis or seborrheic dermatitis. Lesions were avoided by masking the face during irradiation.

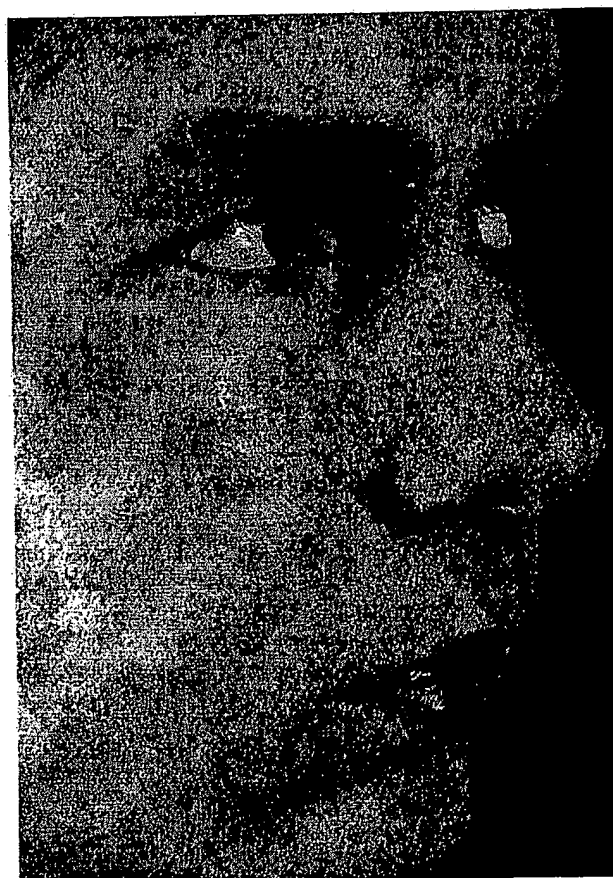
ABERRANT EPIDERMAL PROLIFERATION Epidermal proliferation is increased in seborrheic dermatitis, like psoriasis, explaining why cytostatic therapeutic modalities may improve the condition.¹⁶

NUTRITIONAL DISORDERS Zinc deficiency in patients with acrodermatitis enteropathica and acrodermatitis enteropathica-like conditions may be accompanied by dermatitis mimicking seborrheic dermatitis of the face. Seborrheic dermatitis is, however, not associated with zinc deficiency nor does it respond to supplementary zinc therapy. Seborrheic dermatitis in infancy may have a different pathogenesis. Biotin deficiency, whether secondary to a holocarboxylase deficiency or a biotinidase deficiency, and abnormal metabolism of essential fatty acids have been proposed as possible mechanisms.¹⁷

IMMUNODEFICIENCY AND SEBORRHEIC DERMATITIS

The development of seborrheic dermatitis either de novo or as a flare of preexisting disease also may serve as a clue to the presence of HIV infection. The first report of this association in 1984 was followed by

FIGURE 124-1



Seborrheic dermatitis with involvement of nasolabial folds, cheeks, eyebrows, and nose.

observations from all parts of the world.² The expression of the disease differs in several aspects from its classical form seen in HIV seronegative individuals (Figs. 124-1 to 124-4): the distribution is extensive, severity is marked, and treatment often difficult (Fig. 124-5). Even the histopathologic changes differ somewhat from those seen in commonly encountered seborrheic dermatitis (Table 124-1).

The increased incidence and severity of seborrheic dermatitis in HIV seropositive individuals has led to speculation that unchecked growth of *Pityrosporum* in immunosuppressed patients is responsible. However, a study that compared quantitative *Pityrosporum* cultures in AIDS patients with and without seborrheic dermatitis failed to demonstrate increased yeast colonization in patients with seborrheic dermatitis.¹⁸

PSORIASIS AND SEBORRHEIC DERMATITIS

In patients with a psoriatic diathesis, particularly adults, seborrheic dermatitis is said to evolve into psoriasis. The term *sebopsoriasis* is sometimes used for these overlapping conditions. It should be used with caution because psoriasis, especially of the scalp, is clinically and histopathologically almost indistinguishable from seborrheic dermatitis.

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